WHAT IS CLAIMED IS:

1. An error signal detection method for an optical recording/reproducing system, the method comprising:

(a) detecting a light incident through an objective lens after having been reflected and diffracted from a recording medium, as eight light portions arranged in a 2 x 4 matrix, including four inner light portions, and four outer light portions around corresponding inner light portions, wherein a row and a column of the matrix are parallel to a tangential and a radial direction of the recording medium, respectively;

(b) calculating a first sum signal by summing a detection signal from one of the outer light portions located in a first diagonal direction, and a detection signal from one of the inner light portions located in a second diagonal direction;

(c) calculating a second sum signal by summing a detection signal from one of the inner light portions located in the first diagonal direction, and a detection signal from one of the outer light portions located in the second diagonal direction;

(d) comparing phases of the first and second sum signals and outputting a phase comparison signal, and

detecting a tilt error signal from the phase comparison signal.

2. The method of claim 1, wherein, in step (b), a pair of first sum signals are obtained by summing the detection signal from one of the outer light portions located in the first diagonal direction and the detection signal from the inner light portion located in the second diagonal direction, and by summing a detection signal from another one of the outer light portions located in the first diagonal direction and a detection signal from another one of the inner light portions located in the second diagonal direction; and

in step (c), a pair of second sum signals are obtained by summing the detection signal from the outer light portion located in the second diagonal direction and the detection signal from the inner light portion located in the first diagonal direction, and by summing a detection signal from another one of the outer light portions located in the second diagonal direction and a detection signal from another one of the inner light portions located in the first diagonal direction; and

in step (d), phases of the pair of the first sum signals are compared with each other, and phases of the pair of the second sum signals are compared with each other, to output a

pair of phase comparison signals, and the pair of the phase comparison signals are summed.

3. The method of claim 1, wherein, in step (b), the first sum signal is obtained by summing detection signals from a pair of the outer light portions located in the first diagonal direction and from a pair of the inner light portions located in the second diagonal direction; and, in step (c), the second sum signal is obtained by summing detection signals from a pair of the inner light portions located in the first diagonal direction and from a pair of the outer light portions located in the second diagonal direction; and in step (d), the phases of the first and second sum signals are compared with each other to output the phase comparison signal.

4. The method of claim 3, wherein step (d) further comprises delaying the first or second sum signal prior to comparing the phases of the first and second sum signals.

5. The method of claim 1, further comprising amplifying the detection signals from the inner light portions by a predetermined gain factor before summation with the detection signals from the outer light portions.

6. The method of claim 2, further comprising amplifying the detection signals from the inner light portions by a predetermined gain factor before summation with the detection signals from the outer light portions.

7. The method of claim 3, further comprising amplifying the detection signals from the inner light portions by a predetermined gain factor before summation with the detection signals from the outer light portions.

8. The method of claim 1, further comprising:

(e) comparing a phase of a third sum signal of the detection signals from the inner and the outer light portions located in the first diagonal direction with a phase of a fourth sum signal of the detection signals from the inner and the outer light portions located in the second diagonal direction, to detect a tracking error signal; and

(f) subtracting the tracking error signal from the tilt error signal, so that a detrack component is eliminated from the tilt error signal.

9. The method of claim 2, further comprising:

(e) comparing a phase of a third sum signal of the detection signals from the inner and the outer light portions located in the first diagonal direction with a phase of a fourth sum signal of the detection signals from the inner and the outer light portions located in the second diagonal direction, to detect a tracking error signal; and

(f) subtracting the tracking error signal from the tilt error signal, so that a detrack component is eliminated from the tilt error signal.

10. The method of claim 3, further comprising:

(e) comparing a phase of a third sum signal of the detection signals from the inner and the outer light portions located in the first diagonal direction with a phase of a fourth sum signal of the detection signals from the inner and the outer light portions located in the second diagonal direction, to detect a tracking error signal; and

(f) subtracting the tracking error signal from the tilt error signal, so that a detrack component is eliminated from the tilt error signal.

11. The method of claim 8, wherein step (f) further comprises amplifying the tilt error signal detected in step (d) or the tracking error signal detected in step (e) by a predetermined gain factor.

12. An error signal detection apparatus for an optical recording/reproducing system, comprising:

a photodetector to receive light incident from an objective lens after having been reflected and diffracted from a recording medium; and

a signal processor to detect an error signal by processing detection signals from the photodetector,

wherein the photodetector includes four inner and four outer sections arranged in a 2x4 matrix, to independently receive and photoelectrically convert the light incident from the objective lens, pairs of the inner and outer sections being arranged in radial direction of the recording medium, wherein a row and a column of the matrix are parallel to the radial and a tangential direction of the recording medium, respectively; and

the signal processor compares a phase of a sum of detection signals from one of the outer sections located in a first diagonal direction and from one of the inner sections located

in a second diagonal direction, with a phase of a sum of detection signals from one of the outer sections arranged in the second diagonal direction and from an inner section arranged in the first diagonal direction, to output a phase comparison signal, and the signal processor detects a tilt error signal from the phase comparison signal.

13. The apparatus of claim 12, wherein the signal processor comprises:

a first phase comparator to receive a sum signal of detection signals from the one of the outer sections located in the first diagonal direction and from the one of the inner sections located in the second diagonal direction, and a sum signal of detection signals from one of the outer sections located in the second diagonal direction in a same row as the one of the outer sections in the first diagonal direction and from one of the inner sections located in the first diagonal direction, comparing phases of the received two sum signals, and outputting a first comparator phase comparison signal;

a second phase comparator to receive a sum signal of detection signals from another one of the outer sections located in the first diagonal direction and from another one of the inner sections located in the second diagonal direction, and a sum signal of detection signals from one of the outer sections located in the second diagonal direction in a same row as the another one of the outer sections in the first diagonal direction and from the other one of the inner sections located in the first diagonal direction, comparing phases of the received two sum signals, and outputting a second comparator phase comparison signal; and

an adder to sum the first and second phase comparator signals to generate the tilt error signal.

14. The apparatus of claim 12, wherein the signal processor comprises a phase comparator to receive a first sum signal of detection signals from outer sections located in the first diagonal direction and from inner sections located in the second diagonal direction; to receive a second sum signal of detection signals from outer sections in the second diagonal direction and from inner sections located in the first diagonal direction; and to compare phases of the first and second sum signals to output the phase comparison signal.

15. The apparatus of claim 14, wherein the signal processor further comprises a delay at an input end of the phase comparator, the first or the second sum signal being input to the input end.

16. The apparatus of claim 12, wherein the signal processor further comprises a gain controller to amplify the detection signals from the inner sections by a predetermined gain factor, such that the amplified detection signals are summed with an unamplified one of the detection signals.

17. The apparatus of claim 13, wherein the signal processor further comprises a gain controller to amplify the detection signals from the inner sections by a predetermined gain factor, such that the amplified detection signals are summed with an unamplified one of the detection signals.

18. The apparatus of claim 14, wherein the signal processor further comprises a gain controller to amplify the detection signals from the inner sections by a predetermined gain factor, such that the amplified detection signals are summed an unamplified one of the detection signals.

19. The apparatus of claim 12, wherein the phase comparison signal is used as a detrack signal indicating a degree of deviation of a light spot from a center of a track on the recording medium.

20. The apparatus of claim 13, wherein the phase comparison signal is used as a detrack signal indicating a degree of deviation of a light spot from a center of a track on the recording medium.

21. The apparatus of claim 14, wherein the phase comparison signal is used as a detrack signal indicating a degree of deviation of a light spot from a center of a track on the recording medium.

22. The apparatus of claim 12, further comprising a low pass filter at an output end of the signal processor, to low-pass-filter a received signal, so that a degree of relative tilting between the objective lens and the recording medium is detected regardless of tracking servo operation.

23. The apparatus of claim 12, further comprising a detector at an output end of the signal processor, to detect an envelope of a signal output from the signal processor, corresponding to a relative tilt between the objective lens and the recording medium, or to detect variations of a middle level of the phase comparison signal, so that the tilt error signal is detected under no tracking servo operation.

24. The apparatus of claim 12, further comprising:

a tracking error detector to detect a tracking error signal by comparing a phase of a sum signal of the detection signals from the inner and outer sections located in the first diagonal direction, with a phase of a sum signal of the detection signals from the inner and outer sections located in the second diagonal direction; and

a differential part to subtract the tracking error signal output from the tracking error detector from the phase comparison signal, so that a detrack component is eliminated from the tilt error signal.

25. The apparatus of claim 13, further comprising:

a tracking error detector to detect a tracking error signal by comparing a phase of a sum signal of the detection signals from the inner and outer sections located in the first diagonal direction, with a phase of a sum signal of the detection signals from the inner and outer sections located in the second diagonal direction; and

a differential part to subtract the tracking error signal output from the tracking error detector from the phase comparison signal, so that a detrack component is eliminated from the tilt error signal.

26. The apparatus of claim 14, further comprising:

a tracking error detector to detect a tracking error signal by comparing a phase of a sum signal of the detection signals from the inner and outer sections located in the first diagonal direction, with a phase of a sum signal of the detection signals from the inner and outer sections located in the second diagonal direction; and

a differential part to subtract the tracking error signal output from the tracking error detector from the phase comparison signal, so that a detrack component is eliminated from the tilt error signal.

27. The apparatus of claim 24, further comprising a gain controller between an output end of the tracking error detector or the signal processor, and an input end of the differential part.

28. The apparatus of claim 12, wherein a width of each of the inner and outer sections is constant, or varies in the tangential direction.

29. The apparatus of claim 12, wherein the inner sections of the photodetector receive 10-80% of 0th order diffracted light of the light incident from the objective lens.

30. The apparatus of claim 28, wherein the inner sections of the photodetector receive about 10-80% of 0th order diffracted light of the light incident from the objective lens.

31. The apparatus of claim 12, wherein four light receiving portions each including a pair of the inner and outer sections are separated from each other in the radial and/or tangential direction.

32. The apparatus of claim 31, wherein the first through fourth light receiving portions are separated from each other in the radial and/or tangential direction.

33. The apparatus of claim 12, wherein assuming that tilt error signal levels detected at +1° and -1° radial tilts with respect to a reference level are v1 and v2, respectively, the tilt error signal detected in an on-track state satisfies the maximum absolute value of (v1-v2)/(v1+v2) is 0.2 or less.

34. The apparatus of claim 12, wherein assuming that tilt error signal levels detected at +1° and -1° radial tilts with respect to a reference level are v3 and v3, respectively, the tilt error signal detected satisfies the minimum absolute value of v3 or v4 is about 50% of a tracking error signal level detected in an off-track state by phase comparison.